

### **Remarks/Arguments**

Reconsideration and allowance of the above-referenced application are respectfully requested.

Claims 1-22 are pending. Claims 1 and 15 have been amended. Basis for the amendments can be found in various parts of the specification, including at page 17, line 18 to page 18, line 2.

The applicant acknowledges with appreciation the Examiner's indication that claims 15-18, 21 and 22 would be allowable if rewritten to overcome the rejections under 35 U.S.C. Section 112, second paragraph. Claim 15 has been amended to provide that C<sub>4</sub> olefins react with ethylene to produce a metathesis product in order to overcome this rejection.

Claims 1-14, 19 and 20 are rejected under 35 U.S.C. Section 103(a) as being unpatentable over Schwab '430 in view of "the admitted prior art." Reconsideration is requested.

MPEP 706.02(j) states that to establish a prima facie case of obviousness, the following three conditions must be met: (1) the Office Action must show some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings, (2) there must be a reasonable expectation of success, and (3) the prior art reference (or references when combined) must teach or suggest ALL the claim limitations. "The initial burden is on the Examiner to provide some suggestion of the desirability of doing what the inventor has done." (MPEP 706.02(j)). This burden clearly has not been met, as is explained below in detail. Thus, the Examiner has not presented a prima facie case of obviousness.

Schwab '430 discloses a process having two metathesis steps and two fractionation steps. In the first metathesis step, 1-butene reacts with 2-butene to form propylene and 2-pentene. In the second metathesis step, 2-pentene reacts with ethylene to form 1-butene and propylene. In the first fractionation step, ethylene and propylene are removed from the top of the column, butene is removed from the middle

of the column, and C5+ hydrocarbons are removed from the bottom of the column. In the second fractionation step, ethylene is separated from propylene.

There are multiple differences between the process of claim 1 of the present application and the process of Schwab. Three of these differences are described below. First, as noted in the Office Action, Schwab does not disclose the feature in claim 1, paragraph e, of "processing said mixed C4 stream to remove the isobutylene leaving a remaining normal C4 olefins stream also containing paraffins." Second, as noted in the Office Action, Schwab does not disclose the feature in claim 1, paragraph g, of "admixing the remaining portion of said remaining C<sub>4</sub> and heavier olefins stream with a quantity of ethylene sufficient for conventional metathesis wherein . . . the molar ratio of said external fresh ethylene to the n-butenes in said C<sub>4</sub> olefin stream is from zero to 0.8." Third, Schwab does not disclose the feature in claim 1, paragraph h, of including C<sub>4</sub> olefins in the metathesis reaction with ethylene. In Schwab '430, the C<sub>4</sub> olefins do not enter the second metathesis reactor but instead are either purged or returned to first metathesis reactor.

There is no suggestion in Schwab of modifying the process disclosed therein to include any of the above-noted features of the present application. First, Schwab teaches the removal of isobutylene upstream from the first metathesis reactor, as indicated by the use of raffinate II and the indication that no more than 1-2 % isobutylene should be present in the first metathesis reactor. Second, given the difference between the reaction in the second metathesis reactor of Schwab and the second metathesis reactor of the present application, "optimization" of Schwab is not relevant to and would not lead to the process disclosed in the present application. Third, Schwab clearly teaches away from including butenes in the second metathesis step.

Thus, claim 1 is not obvious in view of Schwab in combination with the "admitted prior art." Dependent claims 2-14, 19 and 20 are believed to be patentable for the same reasons as claim 1.

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In view of the above, it is believed that this application is in condition for allowance, and such a Notice is respectfully solicited.

Respectfully submitted,

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